REMARKS

Claims 1-56 were presented for examination and were pending in this application. In an Official Action dated May 25, 2004, claims 1-56 were rejected. Applicants thank the Examiner for examination of the claims pending in this application and addresses the Examiner's comments below.

Based on the above Amendment and the following Remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

Response to Rejection Under 35 USC § 112, Paragraph 2

In the 7th paragraph of the Office Action, the Examiner has rejected claims 6-22, 28-33, 38, 40-45, and 51-56 as allegedly not specifically pointing out and distinctly claiming the subject matter that the Applicants regard as the invention. Applicants respectfully traverse this rejection.

Claims 6, 17, 28, 40, and 51 have been amended to remove the rounding term as a function of the sign. Applicants assert that these claims are now claimed with sufficient peculiarity to be patentable. For claims 8-10, 18-21, 29-32, 41-44, and 52-55, which depend on 6, 17, 28, 40, and 51, respectively, the Examiner did not list a separate basis for rejection from the claims from which they depend. Thus Applicants assert that these claims are now claimed with sufficient peculiarity to be patentable. Claims 7, 18, and 29 were cancelled.

Claims 11, 22, 33, 45, and 56 have been amended to depend upon independent claims 1, 12, 23, 34, and 46, respectively to eliminate the inconsistency noted by the Examiner.

Claims 12 and 17 have been amended to amended to more accurately reflect the notion of parsing a program to create a processor-readable software program.

Claim 38 has been amended to recite "an integer result" to remedy the antecedent basis problem noted by the Examiner.

These amendment of the claims is made so as to more clearly define the invention, and not to narrow their scope of protection with respect to the prior art, or with respect to potentially infringing devices/compositions/articles. Applicants respectfully submit that claims 6-22, 28-33, 38, 40-45, and 51-56 are now claimed with sufficient peculiarity to be patentable.

Response to Rejection Under 35 USC 102(b)

In the 2nd paragraph of the Office Action, the Examiner rejects claims 1, 5, 12, 16, 23, 27, 34, 38, 39, 46, and 50 under 35 USC § 102(b) as allegedly being anticipated by U.S. Patent No. 6,058,410 ("Sharangpani '410") and U.S. Patent No. 5,696,709 ("Smith '709"). In the 3rd paragraph of the Office Action, the Examiner rejects claims 1, 4-8, 11, 12, 15-19, 22, 23, 26-30, 33, 34, 37-42, 45, 46, 49-53, and 56 under 35 USC § 102(e) as allegedly being rejected as being anticipated by U.S. Patent No. 6,243,728 B1 ("Farooqui '728"). These rejection is now traversed.

The grounds of rejection set forth by the Examiner in the 2nd and 3rd paragraphs of the Office Action appear directed entirely at the limitations of independent claims 1, 6, 12, 17, 23, 28, 34, 40, 46, and 51. There is no specific discussion of any of the features of the other rejected claims. Because of the many distinct features of these claims, the Examiner's omnibus rejection is improper. See MPEP § 707.07(d) ("A plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all

claims in the group.") For this reason the Examiner is respectfully requested to withdraw the rejection of these claims.

Claims 1, 12, 23, 34, and 46 as amended respectfully recite a method of, method of compiling a software program for, processor-readable medium for, a processor for, and a system for executing two instructions including a first instruction to set a rounding mode and executing a second instruction to generate an integer result, wherein the second instruction does not designate the rounding mode.

These aspects of the claimed invention provide for methods and apparatus for executing separate instructions for setting a rounding mode and generating an integer result. (See, e.g., paragraphs [0006], [0008].)

These aspects of the claimed invention are not disclosed or suggested by Sharangpani '410, which is presently understood to disclose selecting between a rounding mode within an instruction to produce an integer result or from a stored, fixed (round to zero) rounding mode, but does not disclose or suggest at least setting a rounding mode in a separate instruction or the ability to change the stored rounding mode. (See, e.g., col. 4, ll. 24-28, 36-41; col. 6, ll. 12-14.)

These aspects of the claimed invention also are not disclosed or suggested by Smith '709, which is presently understood to disclose an instruction for selecting between a default rounding mode or a rounding mode within an instruction to produce an integer result, but does not disclose or suggest at least setting a rounding mode in a separate instruction or the ability to change the default rounding mode. (See, e.g., col. 1, ll. 39-42; col. 2, ll. 57-59, 62-64.)

These aspects of the claimed invention also are not disclosed or suggested by Farooqui '728, which is presently understood to disclose a rounding mode within an instruction to

produce an integer result, but does not disclose or suggest at least setting a rounding mode in a separate instruction. (See, e.g., col. 2, ll. 1-9; col. 4:8-10; col. 7, ll. 11-13.)

It is therefore respectfully submitted that claims 1, 12, 23, 34, and 46 are patentably distinguishable over the cited art.

Dependent claims 2-5, 11, 13-16, 22, 24-27, 33, 35-39, 45, 47-50, and 56 as amended are further limited from claims 1, 12, 23, 34, and 46, respectively by the specific recitations of "wherein executing the second instruction comprises executing an instruction that performs a rounded averaging operation," "wherein executing the second instruction comprises executing an instruction that performs a non-saturating, fixed-point fractional multiplication operation with rounding," "wherein executing the second instruction comprises executing an instruction that performs a right-shift operation with rounding," "wherein executing the first instruction comprises executing an instruction that sets a rounding mode selected from a group of rounding modes," "wherein the second instruction includes an arithmetic right-shift operation on a vector operand by an immediate shift amount with rounding, and wherein the vector operand comprises a signed byte vector, an unsigned byte vector, a signed double word or an unsigned double word," and a fetch unit, a decode unit, and a register file.

These aspects of the invention as now variously claimed are not shown or suggested by either Sharangpani '410, Smith '709, or Farooqui '728. It is therefore respectfully submitted that these dependent claims, specifically claims 2-5, 11, 13-16, 22, 24-27, 33, 35-39, 45, 47-50, and 56, are patentably distinguishable over the cited art for at least this additional reason.

Claims 6, 17, 28, 40, and 51 as amended respectfully recite a method of, method of compiling a software program for, processor-readable medium for, a processor for, and a system for executing a first instruction to set a rounding mode; performing an operation within a programmable processor to produce a result according to a second instruction, wherein the second instruction does not designate the rounding mode; adding a rounding term to the result to obtain an intermediate result, the rounding term determined at least in part as a function of the rounding mode and a shift amount; and right-shifting the intermediate result by the shift amount.

These aspects of the claimed invention provide for methods and apparatus for executing separate instructions for setting a rounding mode and a rounding operation generating an integer result using the rounding mode. (See, e.g., paragraphs [0006], [0008].)

These aspects of the claimed invention also are not disclosed or suggested by Farooqui '728, which is presently understood to disclose a rounding mode within an instruction to produce an integer result, but does not disclose or suggest at least setting a rounding mode in a separate instruction. (See, e.g., col. 2, ll. 1-9; col. 4:8-10; col. 7, ll. 11-13.)

It is therefore respectfully submitted that claims 6, 17, 28, 40, and 51 are patentably distinguishable over the cited art.

Dependent claims 8-10, 19-21, 30-32, 41-44, and 52-55 as amended are further limited from claims 6, 17, 28, 40, and 51, respectively by the specific recitations of "wherein executing the first instruction comprises executing an instruction that sets a rounding mode selected from the group of rounding modes," "wherein the arithmetic operation is a rounded averaging operation of two or four unsigned byte vectors," "wherein the operation is a non-saturating fixed-point fractional multiplication operation with rounding of a set of vector

operands selected from signed half-word vectors, unsigned half-word vectors, signed word vectors and unsigned word vectors," and "further configured to execute the first instruction to set the rounding mode."

Claims 7, 18, and 29 have been are canceled.

These aspects of the invention as now variously claimed are not shown or suggested by Farooqui '728. It is therefore respectfully submitted that these dependent claims, specifically claims 8-10, 19-21, 30-32, 41-44, and 52-55, are patentably distinguishable over the cited art for at least this additional reason.

Based on the above Amendment and Remarks, Applicants respectfully submit that for at least these reasons claims 1-6, 8-17, 19-28, and 30-56 are patentably distinguishable over the cited references. Therefore, Applicants respectfully request that the Examiner reconsider the rejection, and withdraw it.

Response to Rejection Under 35 USC 103(a)

In the 5th paragraph of the Office Action, the Examiner rejects claims 2, 9, 13, 20, 24, 31, 35, 43, 47, and 54 under 35 USC § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,243,728 B1 ("Farooqui '728") and U.S. Patent No. 5,917,739 ("Wong '739"). In the 6th paragraph of the Office Action, the Examiner rejects claims 3, 10, 14, 21, 25, 32, 36, 44, 48, and 55 under 35 USC § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,243,728 B1 ("Farooqui '728") and U.S. Patent No. 4,953,119 ("Wong '119"). These rejections are respectfully traversed.

Claims 2-3, 9-10, 13-14, 20-21, 24-25, 31-32, 35-36, 43-44, 47-48, and 54-55 as amended are further limited from claims 1, 6, 12, 17, 23, 28, 34, 40, 46, and 51, respectively, as discussed above.

These aspects of the claimed invention are not disclosed or suggested by any of the cited references considered alone or in the combination proposed by the Examiner. As discussed above Farooqui '728 reference lacks setting a rounding mode in a separate instruction. (See, e.g., col. 2, ll. 1-9; col. 4:8-10; col. 7, ll. 11-13.)

The Wong '739 reference, as presently understood, merely discloses calculating the average of four integers rounded toward zero according to the MPEG standard, but does not disclose or suggest at least the limitations of the independent claims as discussed above.

The Wong '119 reference, as presently understood, merely discloses a multiplier circuit for fixed and floating point numbers, but does not disclose or suggest at least the limitations of the independent claims as discussed above.

The deficient disclosures of these references, considered either alone or in combination, thus fail to establish even a *prima facie* basis from which a proper determination of obviousness under 35 U.S.C. § 103(a) can be made. A *prima facie* showing of obviousness requires (1) some suggestion or motivation to modify the reference, (2) a reasonable expectation of success, and (3) that the reference(s) teach or suggest all the claim limitations. Applicants submit that they can find no suggestion or motivation to modify or combine the references in the manner suggested by the Examiner. It is irrelevant that it would have been obvious to try; the legal standard is that it must have been obvious to do. There must be a reasonable expectation of success. Here, it is asserted that no such reasonable expectation of success exists. Thus, the suggested, albeit deficient, combination

could only be derived from the Examiner's hindsight reconstruction of these elements using instructions found only in Applicants' own specification.

Based on the above Amendment and Remarks, Applicants respectfully submit that for at least these reasons claims 2-3, 9-10, 13-14, 20-21, 24-25, 31-32, 35-36, 43-44, 47-48, and 54-55 are patentably distinguishable over the cited references, both alone and in combination for at least this additional reason. Therefore, Applicants respectfully request that the Examiner reconsider the rejection, and withdraw it.

Conclusion

In sum, Applicants respectfully submit that claims 1-6, 8-17, 19-28, and 30-56, as presented herein, are patentably distinguishable over the cited references (including references cited, but not applied). Therefore, Applicants request reconsideration of the basis for the rejections to these claims and request allowance of them.

In addition, Applicants respectfully invite the Examiner to contact Applicants' representative at the number provided below if the Examiner believes it will help expedite furtherance of this application.

Respectfully Submitted,
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